

IN THE CLAIMS:

1. (Original) A method for operating a virtual machine within a data processing system, the method comprising the computer-implemented steps of:

storing an object in memory that is managed by a virtual machine that is running on a device within the data processing system;

associating the object with a plurality of objects within an object group;

associating the object group with the virtual machine, wherein the virtual machine incorporates functionality for interoperating with other virtual machines in a virtual machine cluster, [[and]] wherein each virtual machine in the virtual machine cluster acts as a node within the virtual machine cluster, and wherein associating the object group with the virtual machine comprises:

associating the object group with a thread managed by the virtual machine; and

storing the object group in a thread local heap associated with the thread;

managing a plurality of object groups within each virtual machine of the virtual machine cluster;

[[and]]

allowing the object group to be moved from the virtual machine to a different virtual machine in the virtual machine cluster;

disassociating the object group from the virtual machine, wherein disassociating the object group from the virtual machine comprises:

disassociating the object group from the thread;

terminating the thread; and

in response to terminating the thread, managing the object group without an association between the object group and the thread managed by the virtual machine;
moving the object group to the different virtual machine in the virtual machine cluster; and
in response to moving the object group to the different virtual machine, associating the object group with the different virtual machine, wherein associating the object group with the different virtual machine comprises:

creating a first object reference for the object while the object is located on the virtual machine;

moving the object group with which the object is associated to the different virtual machine; and

creating a second object reference for the object while the object is located on the different virtual machine, wherein the first object reference and the second object reference are identical.

2-11. (Canceled)

12. (Currently amended) A computer program product on a computer readable medium for use in a data processing system for operating a virtual machine, the computer program product comprising:

means for storing an object in memory that is managed by a virtual machine that is running on a device within the data processing system;

means for associating the object with a plurality of objects within an object group;

means for associating the object group with the virtual machine, wherein the virtual machine incorporates functionality for interoperating with other virtual machines in a virtual machine cluster, [[and]] wherein each virtual machine in the virtual machine cluster acts as a node within the virtual machine cluster, and wherein the means for associating the object group with the virtual machine comprises:

means for associating the object group with a thread managed by the virtual machine; and

means for storing the object group in a thread local heap associated with the thread;

means for managing a plurality of object groups within each virtual machine of the virtual machine cluster; [[and]]

means for allowing the object group to be moved from the virtual machine to a different virtual machine in the virtual machine cluster;

means for disassociating the object group from the virtual machine, wherein the means for disassociating the object group from the virtual machine comprises:

means for disassociating the object group from the thread;

means for terminating the thread; and

in response to terminating the thread, managing the object group without an association between the object group and the thread managed by the virtual machine;

means for moving the object group to the different virtual machine in the virtual machine cluster;

and

in response to moving the object group to the different virtual machine, means for associating the object group with the different virtual machine, wherein the means for associating the object group with the different virtual machine comprises:

means for creating a first object reference for the object while the object is located on the virtual machine;

means for moving the object group with which the object is associated to the different virtual machine; and

means for creating a second object reference for the object while the object is located on the different virtual machine, wherein the first object reference and the second object reference are identical.

13-22. (Canceled)

23. (Currently amended) An apparatus in a data processing system for operating a virtual machine, the apparatus comprising:

means for storing an object in memory that is managed by a virtual machine that is running on a device within the data processing system;

means for associating the object with a plurality of objects within an object group;

means for associating the object group with the virtual machine, wherein the virtual machine incorporates functionality for interoperating with other virtual machines in a virtual machine cluster, [[and]] wherein each virtual machine in the virtual machine cluster acts as a node within the virtual machine cluster, and wherein the means for associating the object group with the virtual machine comprises:

means for associating the object group with a thread managed by the virtual machine; and

means for storing the object group in a thread local heap associated with the thread;

means for managing a plurality of object groups within each virtual machine of the virtual machine cluster; [[and]]

means for allowing the object group to be moved from the virtual machine to a different virtual machine in the virtual machine cluster;

means for disassociating the object group from the virtual machine, wherein the means for disassociating the object group from the virtual machine comprises:

means for disassociating the object group from the thread;

means for terminating the thread; and

in response to terminating the thread, means for managing the object group without an association between the object group and the thread managed by the virtual machine;

means for moving the object group to the different virtual machine in the virtual machine cluster;

and

in response to moving the object group to the different virtual machine, means for associating the object group with the different virtual machine, wherein the means for associating the object group with the different virtual machine comprises:

means for creating a first object reference for the object while the object is located on the virtual machine;

means for moving the object group with which the object is associated to the different virtual machine; and

means for creating a second object reference for the object while the object is located on the different virtual machine, wherein the first object reference and the second object reference are identical.

24-33. (Canceled)